REORIENTING SOCIAL SCIENCE CURRICULUM FOR SUSTAINABLE DEVELOPMENT AND STUDYING ITS EFFECTIVENESS

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Reorienting Social Science Curriculum for Sustainable Development and Studying its Effectiveness

1.0 Introduction

"Our biggest challenge in this new century is to take an idea that seems abstract – sustainable development – and turn it into a reality for all the world's people."

- Kofi Annan, Former Secretary General of the United Nations

The 21st century is a century of opportunities and also a century of challenges. Development is a fundamental characteristic and need of the human society. However, in most cases development is unsustainable and this is creating challenges for human existence. There is an urgent need to adopt measures for sustainable development today.

1.1 Sustainable Development: Emergence of the Concept

The term 'sustainable development' became distinctly recognized following the Brundtland Commission's Report, "Our Common Future" (1987). According to this Report, Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (United Nations, 1987).

The United Nations World Conference on Environment and Development (WCED), which took place in Rio de Janeiro in 1992 and which was strongly influenced by the terminology that was introduced by the Brundtland Report, was an important milestone for making the concept of 'sustainable development' more concrete (Scott & Gough, 2003). In both these documents three main aspects of sustainable development were identified viz. – environmental (ecological), economical and social. The concept grew more detailed and branched out into the 8 Millennium Development Goals (MDGs) by United Nations in year 2000. These include eradication of extreme poverty and hunger, to achieve universal primary education, to promote gender equality and empower women, to reduce child mortality, to improve mental health, to combat HIV/AIDS, malaria and other diseases, to ensure environmental sustainability and to develop a global partnership for development. These goals had to be achieved in a time bound manner most of

them by 2015. At the end of the period it was assessed that several goals had been accomplished, but a lot more ground had to be covered. To address the emerging challenges, in the year 2015 a set of 17 Sustainable Development Goals (SDGs) were declared as milestones to be reached by the year 2030. The 17 SDGs include the goals of no poverty, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions and partnership for the goals. Most of the issues of sustainability are complex because social, economic and ecological aspects are strongly interwoven. Simple predictions on the basis of linear causal relationships are therefore difficult to make.

1.2 Education for Sustainable Development (ESD)

From the time the term 'sustainable development' was first endorsed at the UN General Assembly in 1987, the parallel concept of education to hold up sustainable development has also emerged. From 1987 to 1992, the concept of sustainable development became full-fledged as committees discussed, negotiated and wrote the 40 chapters of Agenda 21 of the United Nations. Primary thoughts concerning ESD were captured in Chapter 36 of Agenda 21(United Nations, 1994).

The history of ESD goes back to the 1992 United Nations Conference on Environment and Development, where 178 Member States agreed on a framework for action in Agenda 21 – chapter 36, recognizing that education, public awareness and training are critical tools for the evolution to sustainable development; and calling for 'reorienting education towards sustainable development' (UN, 1992: paragraph 36). UNESCO was assigned as task manager for the goals laid down in chapter 36.

Ten years after the WCED conference in Rio de Janeiro, a new conference was organized in Johannesburg in 2002 to stimulate the member states to make efforts to rejuvenate the agenda of

sustainable development and to meet the newly emerging challenges. Although no new agreements were made but a new implementation plan was developed. Thus, the foundation was laid for a UN Decade for Education for Sustainable Development (UNDESD) from 2005 to 2014. The UNESCO received the responsibility for planning the Decade and to develop an implementation scheme. Thus the concept of ESD (Education for Sustainable Development) took a concrete form.

Education for Sustainable Development (ESD) carries with it the inbuilt idea of implementing programs that are locally relevant and culturally appropriate. All sustainable development programs including ESD must take into consideration the local environmental, economic and societal conditions. As a result, ESD will take many forms around the world. For instance, a commendable effort to achieve sustainable development in harmony with local environment and culture has been undertaken by the *Bodhshala* project undertaken by the NGO SIDH (Society for Integrated Development of Himalayas) (Venkatesh, R. 2015).

This much is clear that to achieve the goal of sustainability 'Education' is the master key. Only and only through ESD we can achieve SDGs.

UNESCO considered its efforts to promote ESD within an International Implementation Scheme (IIS) (UNESCO, 2005) which included the Millennium Development Goals (MDGs), Education for All (EFA) and the United Nations Literacy Decade (UNLD).

The thrust areas of ESD initiated by Agenda 21 (Chapter 36) and reinforced by the IIS are as follows which added to it 7 strategies:

Four major thrusts of ESD

1. Improving access and retention in quality basic education.
2. Reorienting existing educational programmes to address sustainability.

Seven strategies for ESD

1. Vision-building and advocacy.
2. Consultation and ownership.
3. Partnership and networks.
4. Capacity-building and training.

3. Increasing public understanding and awareness of sustainability.
4. Providing training to advance sustainability across all sectors.
5. Research and innovation.
6. Use of Information and Communication Technology (ICT).
7. Monitoring and evaluation.

The followings are some details about each of these thrust areas -

1.2.1 Improving Access and Retention in Quality Basic Education: The First Priority

Basic education mainly focuses on reading, writing and arithmetic. Sometimes basic education means – literacy. But this is not complete concept. Literacy is only a medium for achieving education. The main purpose of basic education is to familiarize children with their societies and to skill them so that they can adjust themselves within their societies. At this stage pupils learn how their government functions and about the world beyond their community. Merely increasing basic literacy, as it is currently taught in most countries, will not evolve sustainable societies. Indeed, if communities and nations hope to identify sustainability goals and work towards them, they must focus on skills, values and perspectives that encourage and support public participation and community decision making. It is needed that basic education must be reoriented to pact with sustainability and expanded to include critical thinking skills, skills to organize and also interpret data and information, skills to formulate questions and the ability to analyze issues that confront communities.

1.2.2 Reorienting Existing Educational Programmes to Address Sustainability: The Second Priority

Reorienting education is needed or intended to help educators and administrators at every level (i.e., nursery school through university) to understand the changes required for ESD. An aptly reoriented basic education includes more principles, skills, perspectives and values related to sustainability than are currently included in most education systems. Hence, it is not only a matter of access to quantity of education, but also one of its suitability and significance. ESD encompasses a vision that integrates environment, economy and society. Reorienting education

also requires teaching and learning knowledge, skills, perspectives and values that will guide and motivate people to pursue sustainable livelihoods, to participate in a democratic society and to live in a sustainable manner.

Reorienting education to deal with the issue of sustainability, programme developers need to balance looking forward to a more sustainable society with looking back to traditional ecological knowledge. Native traditions often carry with them the values and practices that embody sustainable resource use. While returning to indigenous lifestyles is not an alternative for the millions of urban dwellers, the values and major tenets of indigenous traditions can be adapted to life in the 21st century.

Reorienting education to address sustainability is something that should occur throughout the formal education system — that includes universities, professional schools (e.g., law and medicine) and technical schools in addition to primary and secondary education.

1.2.3 Increasing Public Understanding and Awareness of Sustainability: The Third Priority

Sustainability requires such a population that is conscious of the goals of a sustainable society and has the knowledge and skills to contribute to those goals. So there is a great need to increase public understanding and awareness towards sustainability.

1.2.4 Providing Training to Advance Sustainability across All Sectors: The Fourth Priority

In Chapter 36 Training was also stressed. The world needs a learned and environmentally aware citizenry and work force to help guide nations in implementing their sustainability strategy. All sectors - including industry, business, higher education, governments, nongovernmental organizations (NGOs) and community organization – are encouraged to train their leaders in environmental management and to make available training to their workers.

Training informs people of conventional practices and procedures and gives them skills to perform specific tasks. In contrast, education is a socially transforming process that gives people knowledge, skills, perspectives and values through which they can participate in and contribute to their own well-being and that of their community and nation.

The work on ESD conducted by UNESCO has only been recently taken up in India in a systematic form by the NCERT at the school level through its document on "Towards a Green School" (NCERT, 2015).

1.3 Reorienting Existing Education towards Sustainability: Curricular Implications

ESD is much more than a knowledge base connected to environment, economy and society. It also addresses learning skills, perspectives and values that direct and motivate people to seek sustainable livelihoods, participate in a democratic society and live in a sustainable manner. ESD involves studying local and global issues. Knowledge, skills, issues, perspectives, and values must be addressed in a formal curriculum that has been reoriented to address sustainability (UN: Agenda 21: Chapter 36).

1.3.1 Knowledge

Because of Sustainable development encompasses environment, economics and society, so people need basic knowledge from the natural sciences, social sciences and humanities to understand the principles of sustainable development. Thus knowledge based on traditional disciplines should be reoriented to support ESD.

1.3.2 Issues

ESD focuses on social, economic and environmental issues that threaten the sustainability of the planet. Many of these key issues were recognized at the Earth Summit in Rio de Janeiro (1992) and are found in Agenda 21. To understand and address these issues are in centre of Education for Sustainable Development, also locally relevant issues should be included in any program related to educating for sustainability.

1.3.3 Skills

ESD must go beyond teaching about these global issues. ESD must provide people practical skills that will facilitate them to continue learning after they leave school, to have a sustainable livelihood and to live sustainable lives. These skills will differ with community conditions. Pupils

will need to learn skills that will help them manage and interact with the local environment and later beyond it as well.

1.3.4 Perspectives

ESD has its perspectives that are important for understanding global and local issues in a global context. The ability to think about an issue from the view of different stakeholders is essential to ESD. Taking into consideration an issue from another viewpoint besides your own leads to intra-national and international understanding. This understanding is essential for creating the mood of collaboration that will underpin sustainable development. When taught to a generation of pupils, such perspectives will become infused into local worldviews.

1.3.5 Values

Values are essential and an integral part of ESD. Educating for a sustainable future can be viable only if based on an understanding of one's own values, the values of the society one lives in and the values of others around the world. Values clarification and values analysis are two common techniques that are useful to the values component of ESD.

Social justice is considered to be a necessary component of ESD. It includes respect for the traditions and religions of other societies and cultures and it fosters empathy for the life conditions of other peoples. Also, ecological sustainability and resource conservation are considered a significant part of social justice. Values taught in schools need to reproduce the larger values of the society that surrounds the schools. In addition, curriculum decision-makers will decide if new values, which will help communities reach their goals of sustainability, need to be included in the curriculum.

This implies that Education for Sustainable Development needs a holistic approach, rather than the reductionist approach which is common in traditional educational systems. Indeed, a reductionist approach can often be the origin of these problems. It follows that, if we desire a consensus rather than a (usually messy) compromise, then sustainability challenges need to be approached at a systemic level (Sterling, 2001;Tilbury , 2005).

UNESCO world conference on Education for Sustainable Development (Bonn Declaration, 2009) says that we need a shared commitment to education that empowers people for change. Such education should be of a quality that provides the values, knowledge, skills and competencies for sustainable living and participation in society and decent work.

At present Education 2030 Agenda has been accepted which originated from the World Education Forum (WEF) 2015 held in Incheon, Republic of Korea (UNESCO, 2015a). It says that education is the fundamental tools for the sustainable, inclusive, fair and cohesive development of a country.

As the Education 2030 Agenda positions learning as the core purpose of education, a new opportunity arises for the curriculum to lay key foundations for relevant and sustainable learning (IBE-UNESCO, 2015). Indeed, global evidence shows that any successful education reform rests upon a robust curriculum proposal.

As mentioned in 1.1earlier the world has a new Agenda for Sustainable Development, adopted by the international community in September, 2015 (United Nations, 2015), to wipe out poverty through 17 Sustainable Development Goals (SDGs) by 2030. These ambitious goals were unanimously adopted by the 193 Member States of the United Nations who have the prime responsibility to realize them.

Education is captured in one goal – Sustainable Development Goal 4 – which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" but actually it is the key to achieving all the sustainable development goals.

UNESCO, as the sole UN agency mandated to cover all aspects of education, is entrusted to lead and coordinate the achieving of this goal with its partners through the Education 2030 Agenda.

The Education 2030 Agenda is built on the fact that education drives development by transforming lives. To achieve this, education itself must be transformed: it must be open to all, inclusive and of good quality.

For each SDG, learning objectives are described in the cognitive, socio-emotional and behavioural domains (UNESCO, 2017a).

- The cognitive domain comprises knowledge and thinking skills necessary to better understand the SDG and the challenges in achieving it.
- The socio-emotional domain includes social skills that enable learners to collaborate, negotiate and communicate to promote the SDGs as well as self-reflection skills, values, attitudes and motivations that enable learners to develop them.
- The behavioural domain describes action competencies.

Additionally, for each SDG, indicative topics and pedagogical approaches are outlined.

The Education 2030 Framework for Action was adopted by 184 UNESCO Member States on 4 November, 2015 in Paris. It is the result of a collective effort involving in-depth, wide-ranging consultations driven and owned by countries, and facilitated by UNESCO as well as other partners. The development of the Framework was guided by the Education for All (EFA) Steering Committee convened by UNESCO, and finalized through the Drafting Group for the Education 2030 Framework for Action. So, now there is a new opportunity for curriculum reorientation.

2.0 Emergence, Need and Justification of the Study

Lijmbach et.al. (2000) considers education as an instrument for the development of autonomously thinking persons. They strongly emphasize, together with other researchers (Rauch, 2004) a critical reflection of the different visions on sustainable development and even on the desirability of sustainable development.

According to Irina Bokova, Director-General of UNESCO (2012) Education is the most powerful path to sustainability. Economic and technological solutions, political regulations or financial incentives are not enough. We need a fundamental change in the way we think and act.

It is time for us to orient our all activities towards the direction of sustainability. From the launching of DESD in 2005 within 10 years UNESCO made great efforts to reorient education

but till now there are still too many countries that have not reoriented their curriculum towards sustainability.

According to Scott (2002) ESD should promote schools to stimulate their pupils to reflect on their own lifestyle regarding sustainability issues. It implies that they should be able to reflect on the concept of sustainable development with respect to decisions they take in the context of their own life. Critical reflective thinking therefore becomes an essential tool for sustainable living. To build this capability among the masses is possible only through the instrumentality of a well conceptualized and well implemented scheme of education.

In 2015, NCERT developed a resource book named "Towards a Green School" on Education for Sustainable Development for Elementary Schools, which is a positive step in this direction (NCERT, 2015).

In India too a report "Achieving the Sustainable Development Goals in India: A Study of Financial Requirement and Gaps" (2015) advocates that there is a need to promote peaceful and inclusive societies for sustainable development. As we know peace is the matter of mind and it is related intimately with education (TARA, 2015).

Fortunately, it can be seen that there are a large number of documents and researches that advocate the introduction of sustainability in curriculum. They also emphasize that it should be introduced at the initial level. It therefore, becomes more important to resolve this issue at basic level especially in countries like India where the rate of schooling is low.

In India till the four National Curriculum Frameworks have been introduced (NCF 1975, NCF 1985, NCF 2000 & NCF 2005) but the first three do not directly deal with sustainable development. Only NCF 2005 at times uses the term 'sustainable development' but sustainability is not the focus of this document. NPE 1986 has made some effort towards environmental education but no updated national curriculum framework has been brought out since the NCF, 2005, as desired by our National Policies on Education 1968 and 1986. Hence, it becomes imperative that we review our national curricular frameworks from the perspective of sustainable

development and reorient our curriculum accordingly. Also, there is a strong need to review the relevance of the National Curriculum Framework, 2005 in the light of the current global sustainability goals declared by UNESCO as SDG 2017.

Though the developmental programmes in India are guided by the Five-Year National Development Plans and The XIIth FYP (2012-17) envisions: 'Faster, Sustainable, and More Inclusive Growth', but the focus is only on environmental sustainability rather than on a holistic approach (NUEPA, 2014). It is therefore, a matter of urgency to reflect on sustainability issues in education as a main stream.

Although it is through all the subjects that the issue of sustainable development can be introduced and promote but Social Science is the one of the most suitable subject for its reflection. Among various school subjects the researcher has focused the study on Social Science as it has high potential for the inclusion of sustainability goals. Moreover, the background and experience of researcher in Social Science education would support the detailed treatment of the topic.

The goals related to sustainable development may be proclaimed as desirable by cited documents, but the ground realities are far from the desired outcomes. It is strongly felt by the researcher that the entire school curriculum, its classroom transaction and its linkages to community life need to be seriously reviewed and tried out. Unless this is done, our school education will simply remain a burden on the state exchequer rather than becoming a transformational input for national development.

3.0 Statement of the Study

Reorienting Social Science Curriculum for Sustainable Development and Studying its Effectiveness.

4.0 Definition of Terms

The major terms used in the title of the study are defined below:

4.1 Reorienting

Reorienting a curriculum implies to modify and enrich the curricular content, transactional methods and materials to address the knowledge, skills and values towards desired goals. It involves reorienting knowledge, issues, perspectives, skills and values central to sustainable development in each of the three components of sustainability – environment, society and economy – and integrates them into the curriculum. Ideally, efforts to reorient education will be based on local, national and global sustainability goals. A properly reoriented curriculum will address environmental, social and economical contexts to make sure that it is locally appropriate and culturally suitable and also is based on national and global sustainability goals.

Operational Definition: In the present study reorienting the curriculum implies modification and enrichment of the curricular aims, syllabi and content of Social Science in the context of selected Sustainable Development Indicators.

4.2 Social Science

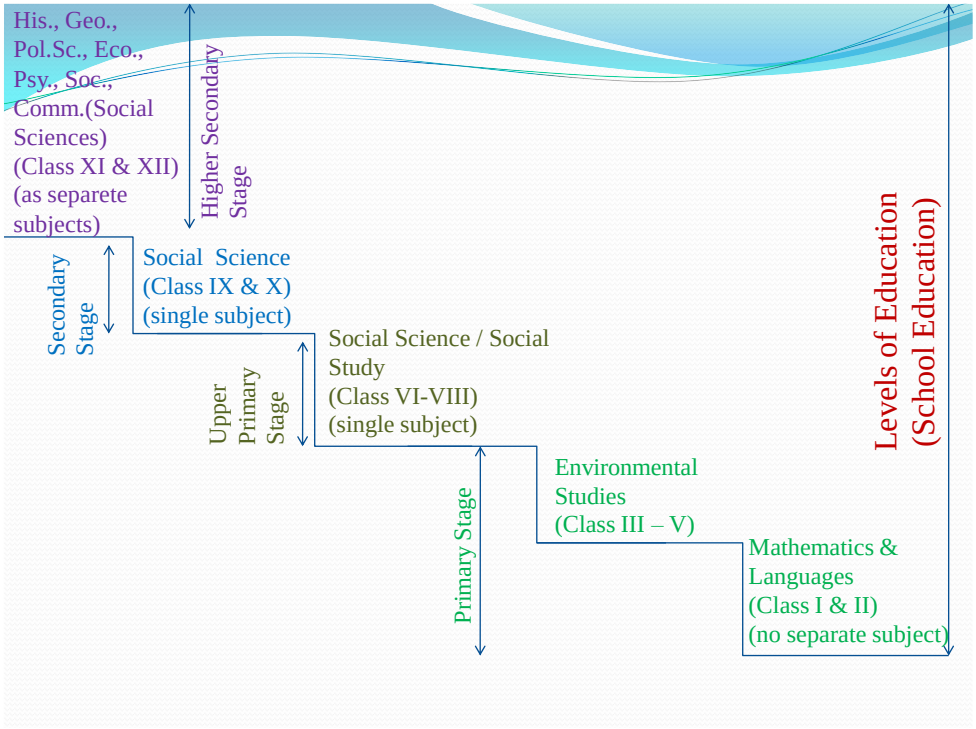
Social Science may be treated as a subject or a discipline. Different terminologies are used for it. Sometimes we term Social Science as Social Study. Generally Social Science includes History, Geography, Political Science and Economics at school level.

NCERT has a differentiated form of Social Science for each level of education. This is represented in Fig.1.

Thus the study of Social Science begins in the form of Environmental Study in class III and proceeds to become specialized study of History, Geography, Political Science (Civics), Economics, Psychology, Sociology and Commerce at the higher Secondary Stage.

Operational Definition: In the present study the term Social Science has been taken to include content related to History, Geography and Political Science (studies in classes VI – VIII as covered by textbooks of Social Science).

Fig.1: Level wise form of Social Science


His., Geo., Pol.Sc., Eco., Psy., Soc., Comm.(Social Sciences) (Class XI & XII) (as separete subjects)
Higher Secondary Stage
Social Science (Class IX & X) (single subject)
Secondary Stage
Social Science / Social Study (Class VI-VIII) (single subject)
Upper Primary Stage
Environmental Studies (Class III – V)
Primary Stage
Mathematics & Languages (Class I & II) (no separate subject)
Levels of Education (School Education)

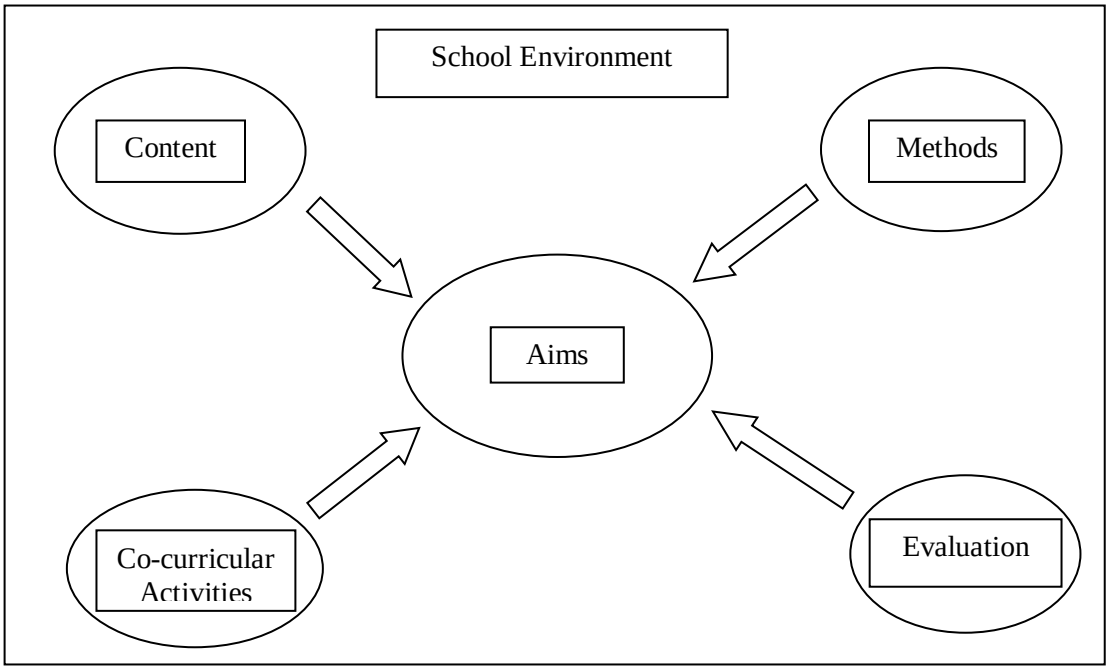
4.3 Curriculum

Curriculum is defined as the sum of all experiences, which are to be provided in an educational institution.

According to Wheeler (1967) curriculum means the designed experiences offered to the learners under the guidance of the school. According to Tanner & Tanner (1975) curriculum has been defined as the designed guided learning practice and anticipated learning outcomes formulated through a logical reconstruction of knowledge and experiences under the auspices of the school for the learner's continuous and willful growth in academic, personal & social competence.

Operational Definition: In the present study curriculum includes the aims, content to be studied (syllabi), its transactional methods & strategies, evaluation plans and co-curricular activities (cf. Fig.2).

Fig.2: Components of Curriculum



4.4 Sustainable Development

The concept of sustainable development was first described by the 1987 Brundtland Commission Report as "development that meets the need of the present without compromising the ability of the present without compromising the ability of future generations to meet their own needs."

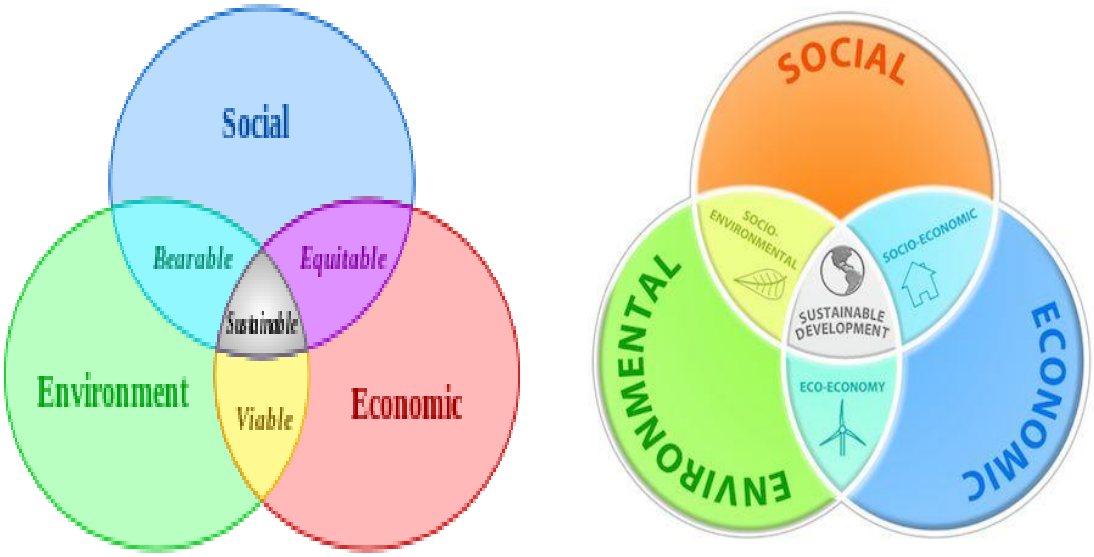
Sustainability is a paradigm for thinking about a future in which environmental, social and economic considerations are balanced in the pursuit of development and an improved quality of life. These three spheres – society, environment and economy – are intertwined (cf. Fig.3).

Sustainability is often thought of as a long-term goal (i.e. a more sustainable world), while sustainable development refers to the many processes and pathways to achieve it (e.g. sustainable agriculture and forestry, sustainable production and consumption, good government, research and technology transfer, education and training, etc.).

All sustainable development programmes must consider the three spheres of sustainability – environment, society and economy – as well as an underlying dimension of culture. Sustainable

development addresses the local contexts of these three spheres so it will take many forms around the world.

Fig.3: Broad Dimensions of Sustainable Development



(a) (b)

(Sources: (a) https://en.wikipedia.org/wiki/File:Sustainable_development.svg,
(b) https://www.pinterest.com/explore/sustainable-development/)

Brundtland Commission Report has considered three domains of sustainability – environment, society and economy. SDGs encompass 17 goals or areas for sustainable development. The local community and university of the present study have adopted a model of 'Sigma Six Q' which includes six areas viz. innovation, air quality, water quality, quality of education and healthcare, agriculture and dairying and values.

Operational Definition: The present study will identify a set of Sustainable Development Indicators for integration in Social Science Curriculum at elementary level.

4.5 Effectiveness

According to Oxford Dictionary Effectiveness is "The degree to which something is successful in producing a desired result."

Operational Definition: In the context of the present study the term effectiveness refers to the degree / extent to which the reoriented Social Science Curriculum is successful in providing desired modification in learning outcomes of students regarding Sustainable Development.

5.0 Objectives

1. To identify the functional indicators of Sustainable Development with reference to Social Science Curriculum.
2. To review the National Curriculum of Social Science at Elementary Level with respect to Sustainable Development Indicators (as identified in objective 1) to find out the gaps in –
   (a) Knowledge
   (b) Perspectives
   (c) Issues
   (d) Skills
   (e) Values
3. To reorient the Curriculum of Social Science at Elementary Level in order to fill the gaps identified in objective 2.
4. To develop sample modules for implementing the reoriented Curriculum of Social Science at Elementary Level.
5. To evaluate the effectiveness of the developed sample modules.

6.0 Variables

With reference to Objective 5 the key variables are as follows:

Independent Variables: Reoriented Social Science Curriculum.

Dependent Variables: Student Competencies related to Sustainable Development.

Control Variables: Class environment, teachers, students' age, class, achievement level, study schedule etc.

7.0 Hypothesis

With respect to objective 5 the following null hypothesis has been framed:

H_0: There will be no significant effect of the developed Social Science Modules on the learners' competencies related to Sustainable Development.

8.0 Research Methodology

The present study will employ a combination of Developmental, Experimental and Qualitative Research Methodologies to achieve different research objectives as detailed below:

Table No. 1

Objectives	Research Methods (R.M.) Used
Objective 1: To identify the functional indicators of Sustainable Development.	R.M. 1: (a) Content analysis of seminal documents related to Sustainable Development. (b) Idea Engineering for consensus building of experts on Sustainable Development.
Objective 2: To review the National Curriculum of Social Science at Elementary Level to find out the gaps regarding Sustainable Development.	R.M. 2: (a) Content Analysis (of the National Curriculum of Social Science at Elementary Level). (b) Expert opinion for the determination of gaps.
Objective 3: To reorient the Social Science Curriculum.	R.M. 3: (a) Curriculum Development Methodology. (b) Expert opinion for modification and enrichment of curriculum.

Objective 4: To develop sample modules. Objective 5: To evaluate the effectiveness of the developed sample modules.	R.M. 4: (a) Developmental Research Methodology (for material production). (b) Expert opinion for validation of sample modules. R.M. 5: (a) Experimental Research Methodology (parallel group post-test design) to evaluate the effectiveness of the developed sample modules. (b) Qualitative Analysis (Case Studies).

9.0 Sampling

(a) The following categories of stakeholders will be chosen:

1. Learners – 70
2. Teachers – 05
3. Teacher Educators / Experts – 05

(b) 5 Experts / Teacher Educators (related with Social Sciences and / or Sustainable Development) will be select with reference to objective 1.

(c) 3 Experts / Teacher Educators from (b) and 5 Teachers (related with Social Sciences) will be select with reference to objective 2.

(d) 2 Experts / Teacher Educators and 3 Teachers from (c) will be select with reference to objective 3 & 4.

(e) For Experimental Study (objective 5) convenience sampling will be used for the selection of school. One school will be chosen having at least two sections of the same class (class VIII). From each section 35 students will be chosen randomly. For Case Study 3 students from each section will be chosen on the basis of regularity and cooperation. Among these

3 students from each section 1 student will be representative of bright, 1 student will be representative of average and 1 student will be representative of below category students.

10.0 Tools

Self made tools will be used for this research as below:

For objective 1:

(a) Content analysis proforma will be used for the analysis of seminal documents related to Sustainable Development.

(b) Rating Scale will be used for consensus building of experts (idea engineering) on Sustainable Development.

For objective 2:

(a) Content Analysis Checklist will be used for the analysis of Syllabi & Textbooks.

(b) Opinionnaire will be used for expert opinion.

For objective 3:

Reoriented curriculum will be used for expert opinion.

For objective 4:

Sample modules will be used for expert opinion.

For objective 5:

Post-test Battery* will be used for measuring Sustainable Development Competencies.

*Battery will include –

1. Sustainable Development Competencies measuring test.

2. Semi structured Observation Schedule.

3. Interviews.

11.0 An Overview of the Research Procedure

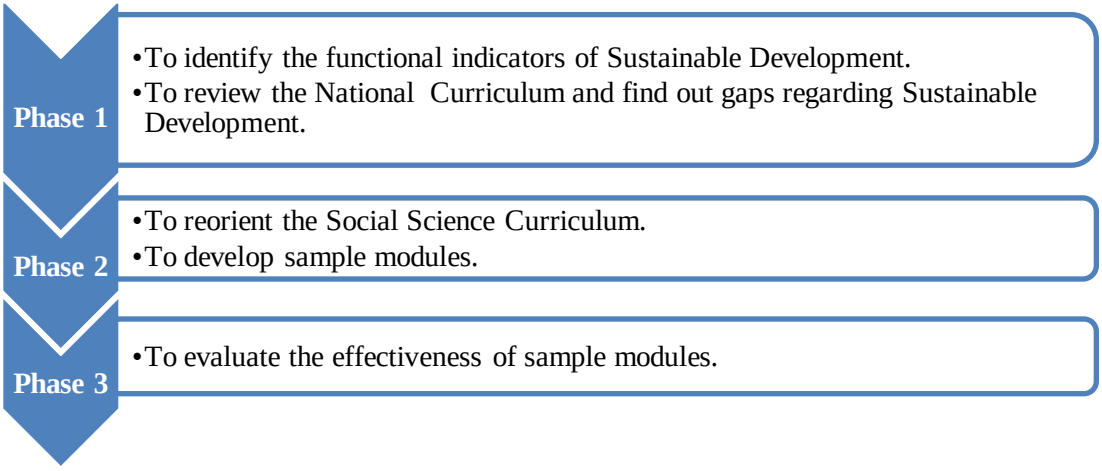
The following table sums up the methodology of the research –

Table No. 2

Objectives, Research Methodology and Tools		
Objectives	**Research Methodology**	**Tools**
Objective 1: To identify the functional indicators of Sustainable Development.	R.M. 1: (a) Content analysis of seminal documents related to Sustainable Development. (b) Idea Engineering for consensus building of experts on Sustainable Development.	Tool 1: (a) Content analysis proforma will be used for the analysis of seminal documents related to Sustainable Development. (b) Rating Scale will be used for consensus building of experts on Sustainable Development.
Objective 2: To review the National Curriculum of Social Science at Elementary Level to find out the gaps regarding Sustainable Development.	R.M. 2: (a) Content Analysis (of the National Curriculum of Social Science at Elementary Level). (b) Expert opinion for the determination of gaps.	Tool 2: (a) Content Analysis Checklist will be used for the analysis of Syllabi & Textbooks. (b) Opinionnaire will be used for expert opinion.
Objective 3: To reorient the Social Science Curriculum.	R.M. 3: (a) Curriculum Development Methodology. (b) Expert opinion for modification and enrichment of curriculum.	Tool 3: Reoriented curriculum will be used for expert opinion.
Objective 4: To develop sample modules.	R.M. 4: (a) Developmental Research	Tool 4: Sample modules will be used for expert opinion.

	Methodology (for material production). (b) Expert opinion for validation of sample modules.	
Objective 5: To evaluate the effectiveness of the developed sample modules.	R.M. 5: (a) Experimental Research Methodology (parallel group post-test design) to evaluate the effectiveness of the developed sample modules. (b) Qualitative Analysis.	Tool 5: Post-test Battery* will be used for measuring Sustainable Development Competencies. *Battery will include – 1. Sustainable Development Competencies measuring test. 2. Semi structured Observation Schedule. 3. Interviews.

On the basis of the above the following **research procedure** will be adopted by researcher –


Phase 1
•To identify the functional indicators of Sustainable Development.
•To review the National Curriculum and find out gaps regarding Sustainable Development.
Phase 2
•To reorient the Social Science Curriculum.
•To develop sample modules.
Phase 3
•To evaluate the effectiveness of sample modules.

12.0 Statistical Techniques

For the analysis of objective 5 the following statistical techniques will be used:

1. Mean.
2. Standard Deviation.
3. Test of Normality (Skewness, Kurtosis).
4. T-test / Chi-square test.
5. Percentage Analysis.

13.0 Delimitation of the Study

(a) Only up to 5 selected goals of Sustainable Development will be taken up for the present study.

(b) This study will cover analysis of Elementary Level National Curriculum of Social Science (Syllabi & Text Books prepared by NCERT) from classes VI to VIII only.

(c) The reorientation of Social Science Curriculum will include its aims, syllabi, methods, co-curricular activities and evaluation pattern.

(d) Sample modules will be prepared for class VIII Social Science Curriculum only.

(e) This research will be done to study chiefly the effect of classroom curriculum transactions rather than the whole school environment on the learning process.

14.0 Significance of the Study

This study will provide a solid framework to promote sustainability in curriculum. This study will identify the loopholes in existing curriculum regarding sustainable development. This study will be helpful to modify our existing curriculum according to local, national and global perspectives. Policy makers can avail usable inputs from this research.

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